

What is claimed is:

1. A transmission mechanism for an automotive vehicle comprising

a drive housing (30) having a first bearing bracket (101) disposed at the upper portion thereof, a second bearing bracket (103) disposed at the left lower portion thereof and a third bearing bracket (105) disposed at the right lower portion thereof;

a differential mechanism (12) including a right side bevel gear (10), a left side bevel gear (13) and a ring gear (11);

a core shaft (9) disposed at the lower portion of said drive housing (30), on which said differential mechanism (12) is mounted;

a driving power input shaft (1) mounted within said first bearing bracket (101) of said drive housing (30);

a sliding gear (2) slidably disposed on said driving power input shaft (1);

a first dual tandem gear (4) mounted on said driving power input shaft (1);

a rear right wheel output shaft (7) mounted within said second bearing bracket (103);

a second dual tandem gear (3) mounted on said rear right wheel output shaft (7) and engaged to said first sliding gear (2) and said first dual tandem gear (4);

a fifth gear (5) mounted on said rear right wheel output shaft (7) and engaged to said first dual tandem gear (4) and said ring gear (11);

a sixth gear (6) fixed on said rear right wheel output shaft (7);

a seventh gear (8) mounted on said core shaft (9) and meshing with said sixth gear (6);

a shaft sleeve (131) fixed to said left side bevel gear (13) and mounted on said core shaft (9);

an eighth gear (14) mounted on said shaft sleeve (131);

a rear left wheel output shaft (18) mounted within said third bearing bracket (105);

a ninth gear (19) fixed on said rear left wheel output shaft (18) and meshing with said eighth gear (14);

a front left wheel output shaft (16) engaged with said shaft sleeve (131); and

5 a front right wheel output shaft (17) engaged with said core shaft (9),

wherein when said driving power input shaft (1) is driven, said sliding gear (2) can be regulated to mesh with either said first dual tandem gear (4) or said second dual tandem gear (3) so that the automotive vehicle can obtain different speeds, and wheels at the same side of the automotive vehicle can be driven at the same time.

10 2. The transmission mechanism of claim 1, wherein said front left wheel output shaft (16) is connected to said shaft sleeve (131) with a slidable engaging member (15), and said core shaft (9) is connected to said front right wheel output shaft (17) with an engaging member (20) disposed between a smaller portion (91) of said core shaft (9) extended from a larger portion (92) and said front right wheel output shaft (17).

15 3. The transmission mechanism of claim 1, wherein said first dual tandem gear (4) includes an inner gear (401) disposed within a first larger gear (403) thereof to mesh with said first sliding gear (2).

4. The transmission mechanism of claim 2, wherein said first dual tandem gear (4) includes an inner gear (401) disposed within a first larger gear (403) thereof to mesh with said first sliding  
20 gear (2).

5. The transmission mechanism of claim 3, wherein said second dual tandem gear (3) includes a second larger gear (303) and a second smaller gear (305) to respectively mesh with a first smaller gear (405) and said first larger gear (403) of said first dual tandem gear (4).

6. The transmission mechanism of claim 4, wherein said second dual tandem gear (3)  
25 includes a second larger gear (303) and a second smaller gear (305) to respectively mesh with a

first smaller gear (405) and said first larger gear (403) of said first dual tandem gear (4).

7. The transmission mechanism of claim 3, wherein said sliding gear (2) is splined to said driving power input shaft (1).

8. The transmission mechanism of claim 4, wherein said sliding gear (2) is splined to said driving power input shaft (1).

9. The transmission mechanism of claim 5, wherein said sliding gear (2) is splined to said driving power input shaft (1).

10. The transmission mechanism of claim 6, wherein said sliding gear (2) is splined to said driving power input shaft (1).

11. The transmission mechanism of claim 1, wherein each of said sliding gear (2) and said slidable engaging member (15) provides a recess (201, 151) at the outer surface thereof for connecting a fork.

12. The transmission mechanism of claim 2, wherein each of said sliding gear (2) and said slidable engaging member (15) provides a recess (201, 151) at the outer surface thereof for connecting a fork.

13. The transmission mechanism of claim 3, wherein each of said sliding gear (2) and said slidable engaging member (15) provides a recess (201, 151) at the outer surface thereof for connecting a fork.

14. The transmission mechanism of claim 4, wherein each of said sliding gear (2) and said slidable engaging member (15) provides a recess (201, 151) at the outer surface thereof for connecting a fork.

15. The transmission mechanism of claim 5, wherein each of said sliding gear (2) and said slidable engaging member (15) provides a recess (201, 151) at the outer surface thereof for connecting a fork.

16. The transmission mechanism of claim 6, wherein each of said sliding gear (2) and said

slidable engaging member (15) provides a recess (201, 151) at the outer surface thereof for connecting a fork.

17. The transmission mechanism of claim 7, wherein each of said sliding gear (2) and said slidable engaging member (15) provides a recess (201, 151) at the outer surface thereof for  
5 connecting a fork.

18. The transmission mechanism of claim 8, wherein each of said sliding gear (2) and said slidable engaging member (15) provides a recess (201, 151) at the outer surface thereof for connecting a fork.

19. The transmission mechanism of claim 9, wherein each of said sliding gear (2) and said  
10 slidable engaging member (15) provides a recess (201, 151) at the outer surface thereof for connecting a fork.

20. The transmission mechanism of claim 10, wherein each of said sliding gear (2) and said slidable engaging member (15) provides a recess (201, 151) at the outer surface thereof for connecting a fork.

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